We examine the findings on the impact of federal preemption with additional analysis. First, when compared with strong state APLs, the less restrictive regulation for OCC lenders likely resulted in increased lending of risky products, which lead to an increase in default risks of OCC loans in the refinance market. Because of the likely selection bias for this study sample, we cannot compare the share of loans with exotic features directly. Instead, similar to our default analysis, we compare the odds of loans with exotic feature in APL states with that in the non-APL states and track the change of the odds ratios over time (Table 10).[22]

The descriptive table shows an obvious pattern in the refinance market: the relative increase in the odds of high-risky lending of OCC lenders in APL states was greater than that of independent mortgage companies. For example, before preemption, OCC lenders in the APL states were about 66 percent less likely to originate a loan with risky features in the fixed-rate refinance market than those in non-APL states (an odds ratio of 0.329). However, after the preemption, these OCC lenders in APL states were only 58 percent less likely to originate such loans in 2004 and 50 percent less likely in 2005 and 2006. In contrast, the relative increase in the odds of originating risky loans for independent mortgage companies is more modest during that period: the odds ratio increases from 1.585 before the preemption to 1.720 in 2004 and to 1.876 in 2005 and 2006). However, in the home purchase market, though the probability of originating loans with risky features increased significantly for OCC lenders, there was a similar, and sometimes even greater, increase for independent mortgage companies. In other words, after the OCC preemption, OCC lenders increased their share of loans with risky features in all the markets, aligning their lending practices to those of the independent mortgage companies. However, likely because state APLs had more restrictions in the refinance market and independent mortgage companies had to follow these rules, the increase in high-risky lending for OCC lenders outpaced that for independent mortgage companies in this market. This sharp increase in risky lending could explain the increased default risk of OCC loans.

Second, the overall composition of the mortgage industry may also explain these results. Lenders whose business model relied on greater volumes of subprime mortgages may have shifted to national charters to take advantage of the preemption. In fact, some banks like JP Mortgan Chase and HSBC switched to national charters after the preemption and the market share of out-of-state national banks increased much more in APL states than in non-APL states (Davis and Rice 2006). In addition, Avery, et al. (2007) documented that national banks expanded their share in the subprime market in part by acquiring existing independent mortgage companies. OCC preemption, then, would have granted these independent mortgage companies a way to become immune from the strong APLs that they were previously under, thereby also increasing the volume of risky lending.

Although our results are strongly suggestive of a link between federal preemption and risky lending, we should note that, due to data limitations, the focus of this study is on conventional, 30-year, first-lien, and private securitized mortgages only. Additional research is needed to

[22] Odds of a loan with an exotic feature is calculated here by dividing the share of loans with exotic features (*p*) by that of loans without such features (*1-p*). For example, the share of loans by OCC lenders with exotic features in the 2002-2003 cohort is 17.45 percent, then the odds is 0.211. Odds ratios can be calculated by dividing the odds of one particular lender type by the odds of the reference group (OCC_nonAPL).